

# DF1 Assembly and Flashing Instructions

Please follow this instruction step-by-step. These steps should be executed exactly in order to reduce assembly mistakes and prevent production errors.

For ANY questions, please do not hesitate to contact JB at [jbremnant@gmail.com](mailto:jbremnant@gmail.com).

## Required Materials

- DF1 TestJig
- CC Debugger: <http://www.ti.com/tool/cc-debugger>

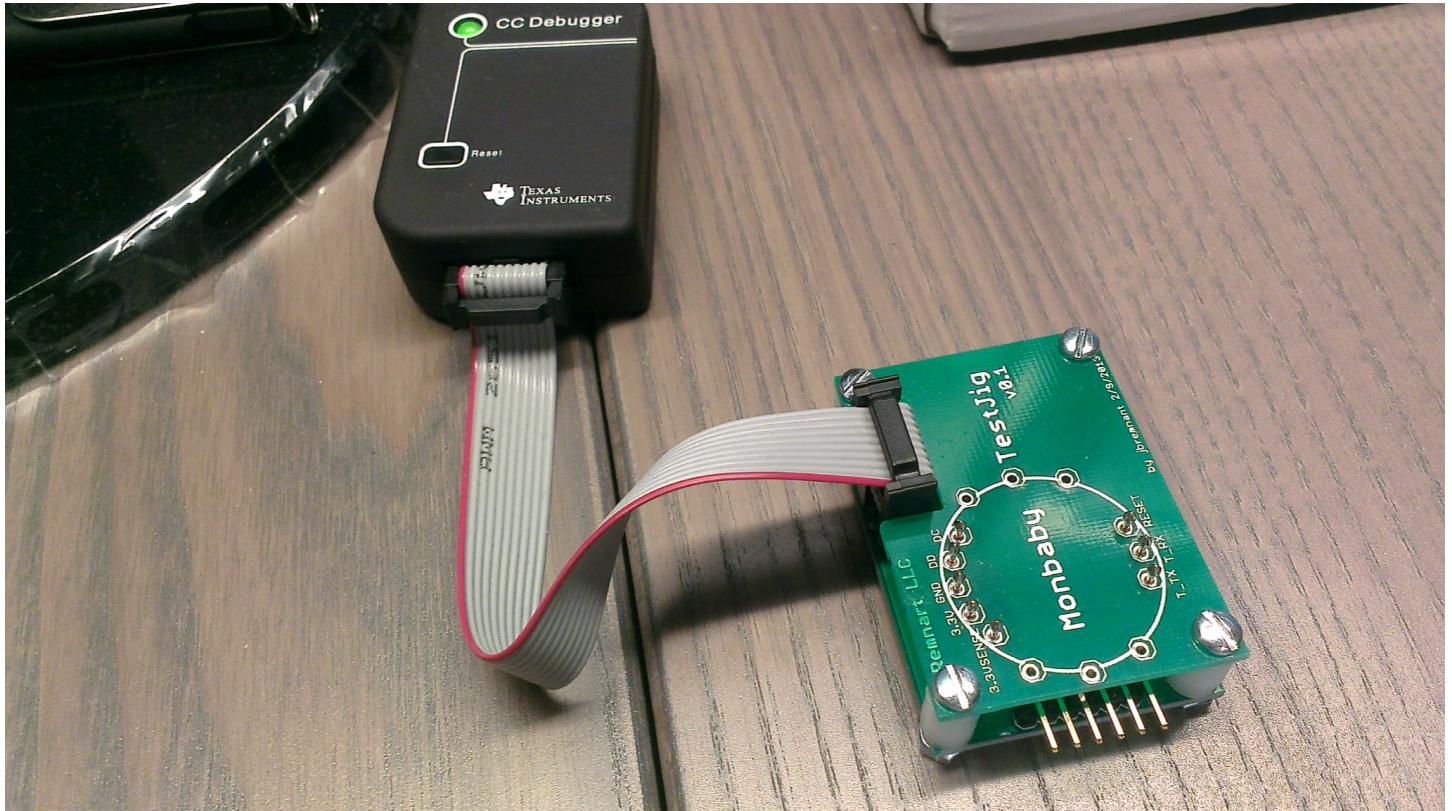


Figure 1: debugger and jig

- Mini USB cable
- TI Smart RF Flash Programmer: <http://www.ti.com/tool/flash-programmer>
- DF1 firmware
- Kapton 3/4 inch dot tape
- 2 Battery clips : 1 positive (strip-looking), 1 negative (flat-looking)

## Step 1 : Obtain the Firmware

The firmware should have been emailed to you. In case you do not have it, download the zip file containing the .hex file from here:

[https://github.com/devicefactory/share/raw/master/hexfiles/df1\\_prod\\_201404.zip](https://github.com/devicefactory/share/raw/master/hexfiles/df1_prod_201404.zip)

Make sure you unzip the file and find DF1\_prod\_v1.3.hex firmware file.

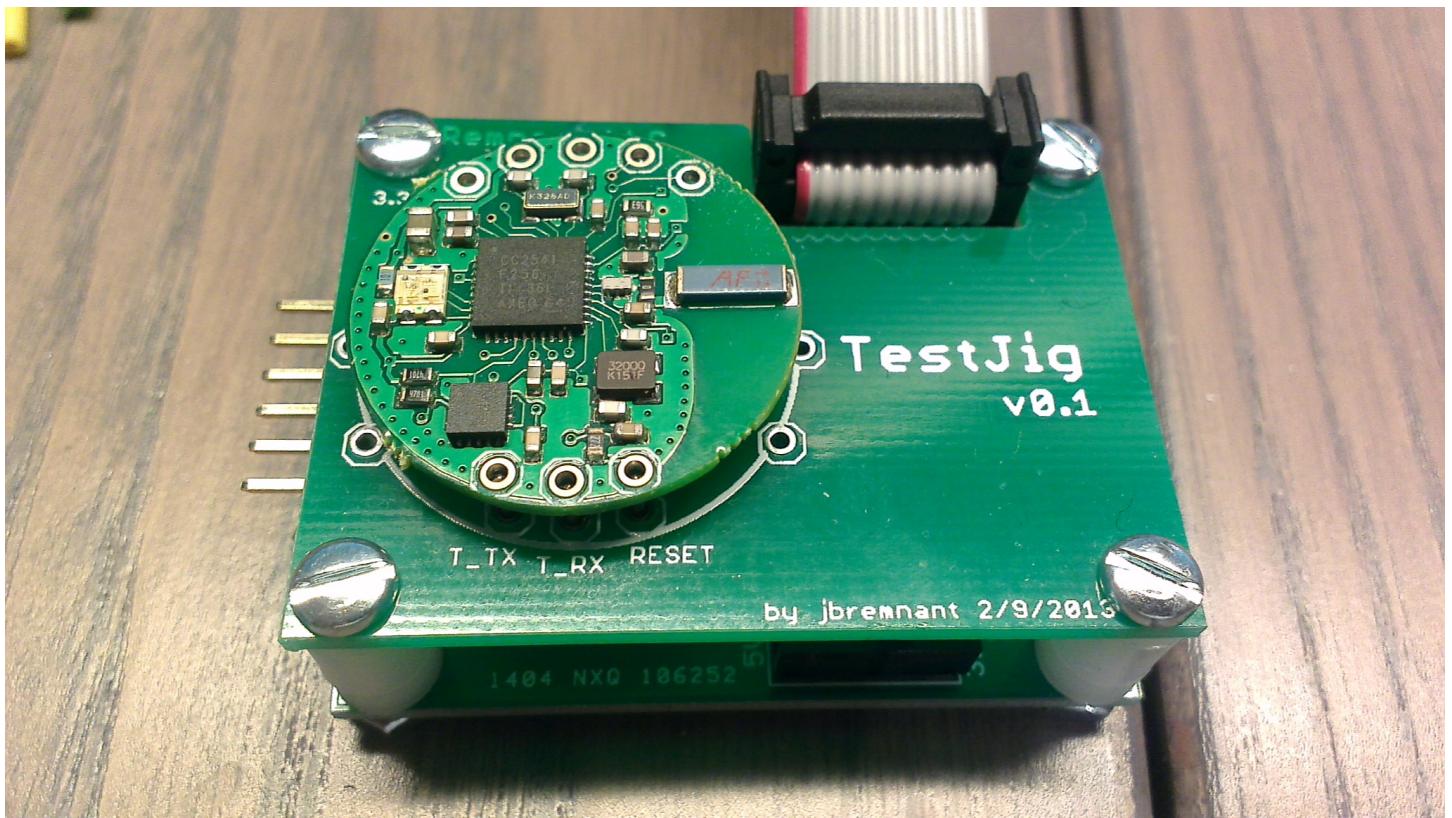
## Step 2 : Prepare the TestJig and Software

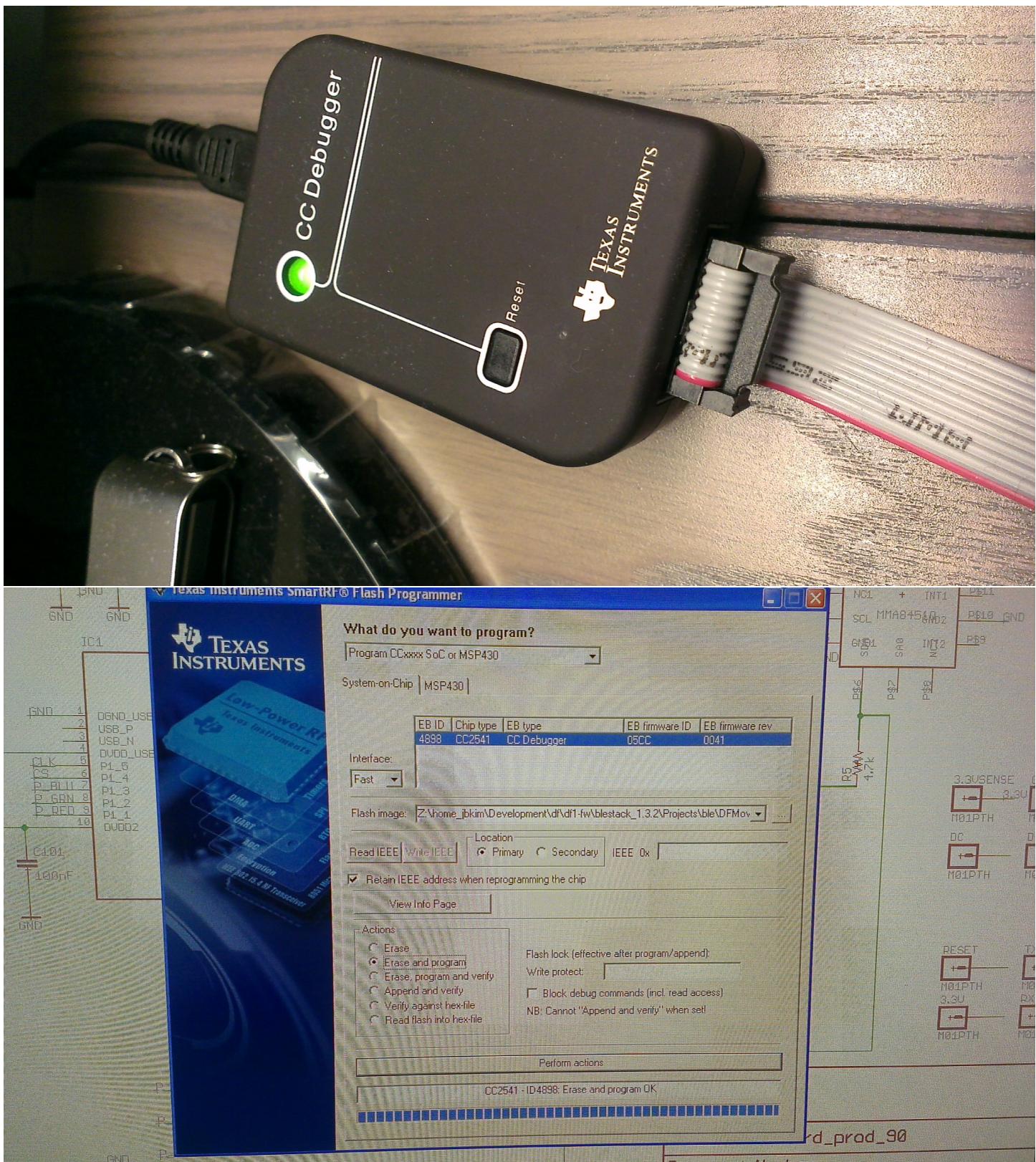
1. Connect the ribbon connector to the testJig. (refer to Figure 1 above)
2. Connect the mini usb cable to the CC Debugger
3. Connect the other end of USB cable to the PC
4. Download and install SmartRF Flash Programmer if the PC does not have it installed:

<http://www.ti.com/tool/flash-programmer>

## Step 3 : Flash the Firmware

1. Place the board directly on top of the test jig. Keep it pressed firmly with your finger to maintain electrical contact.
2. Press the button on the CC Debugger, and make sure the light turns GREEN.
3. Locate the DF1 firmware `DF1_prod_v1.3.hex` file you downloaded. On SmartRF Flash Programmer, click on button ... to load it.
4. Under Actions, choose `Erase, program and verify`.
5. On SmartRF Flash Programmer, click on button `Perform actions` to upload the firmware.
6. If successful, the device should blink the red LED briefly once flashing is done.





## Step 4: File the Nubs from the Boards

There are 4 nubs that needs to be filed down.

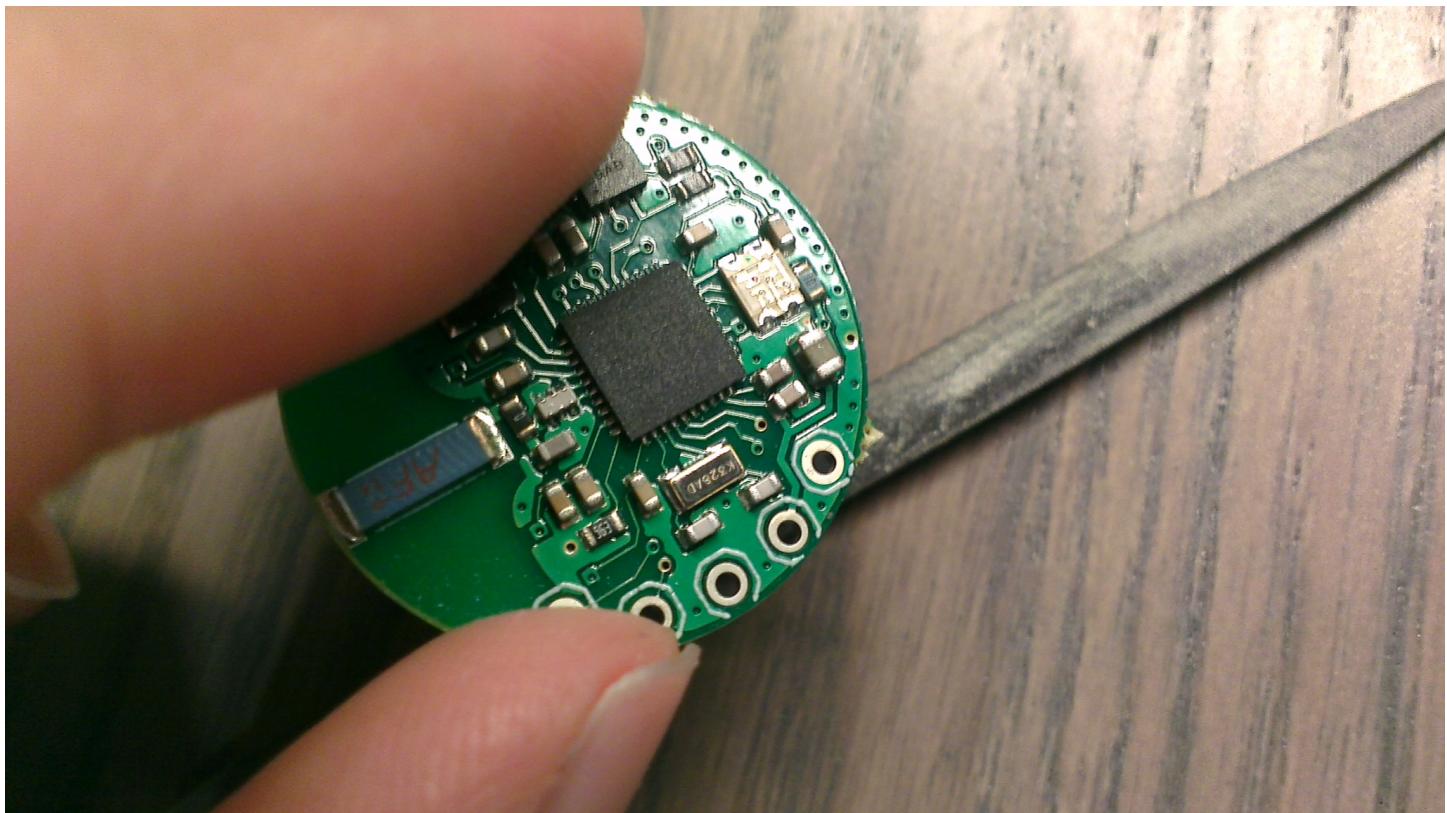
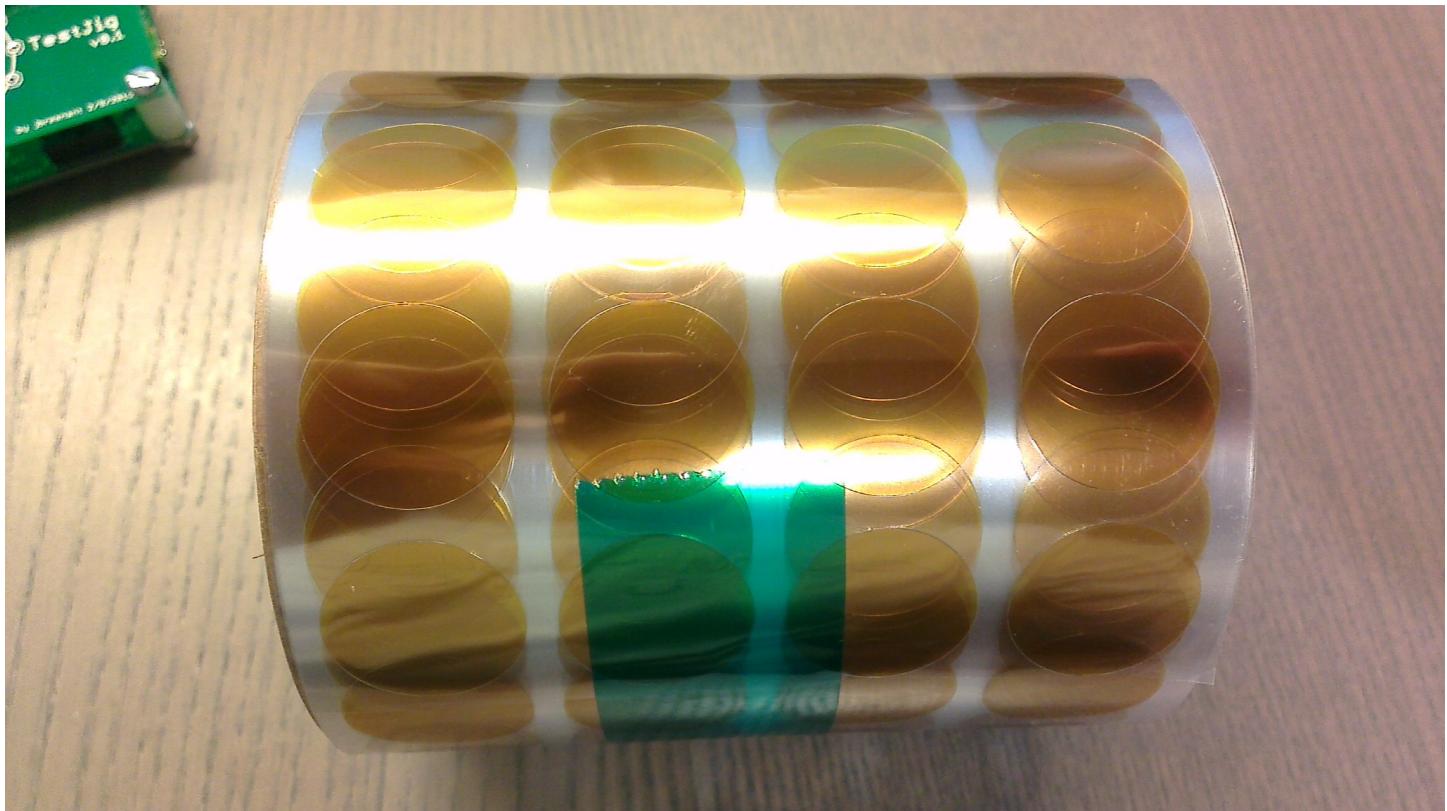
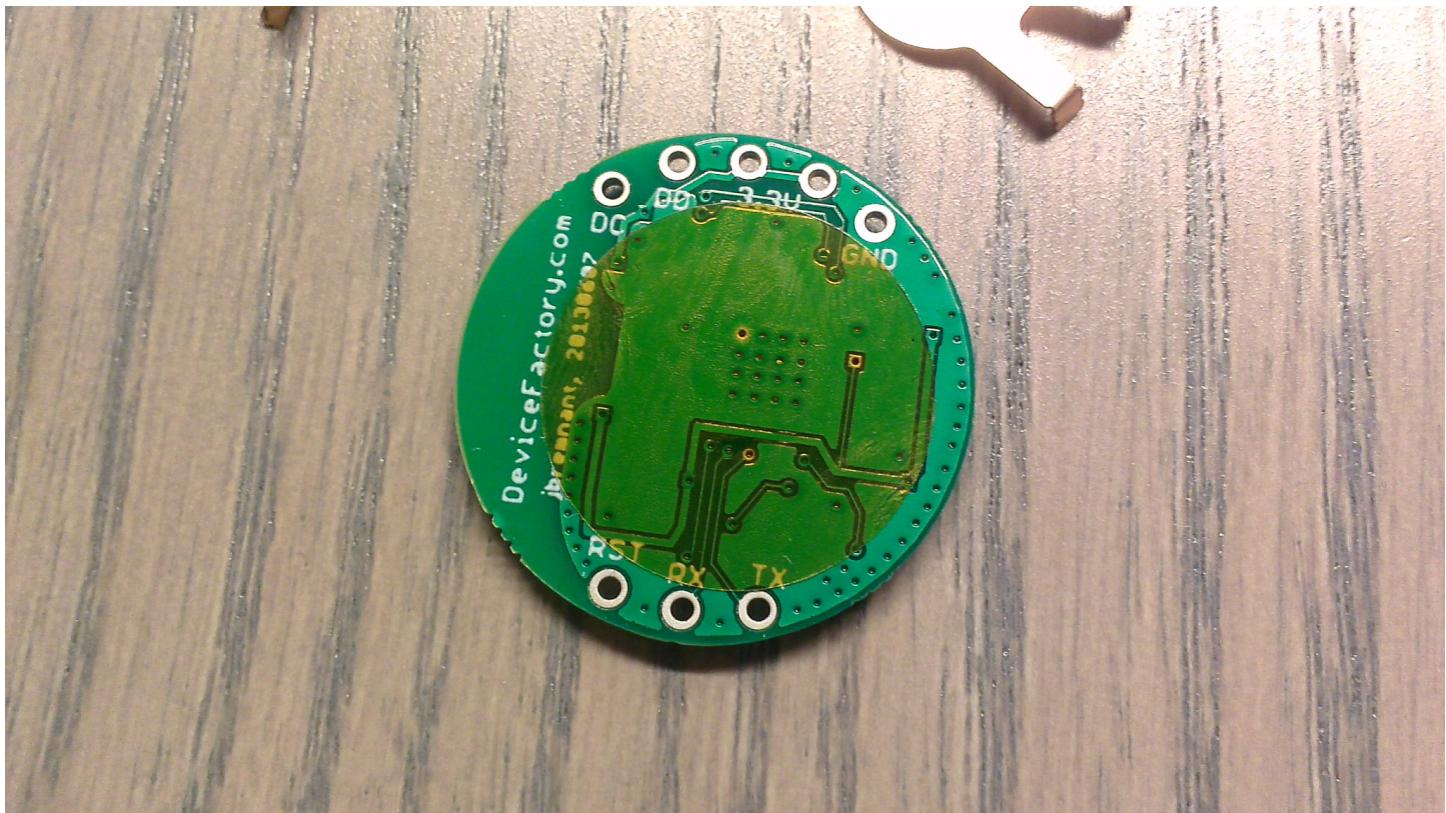


Figure 2: nubs

### Step 5 : Apply the Kapton Tape

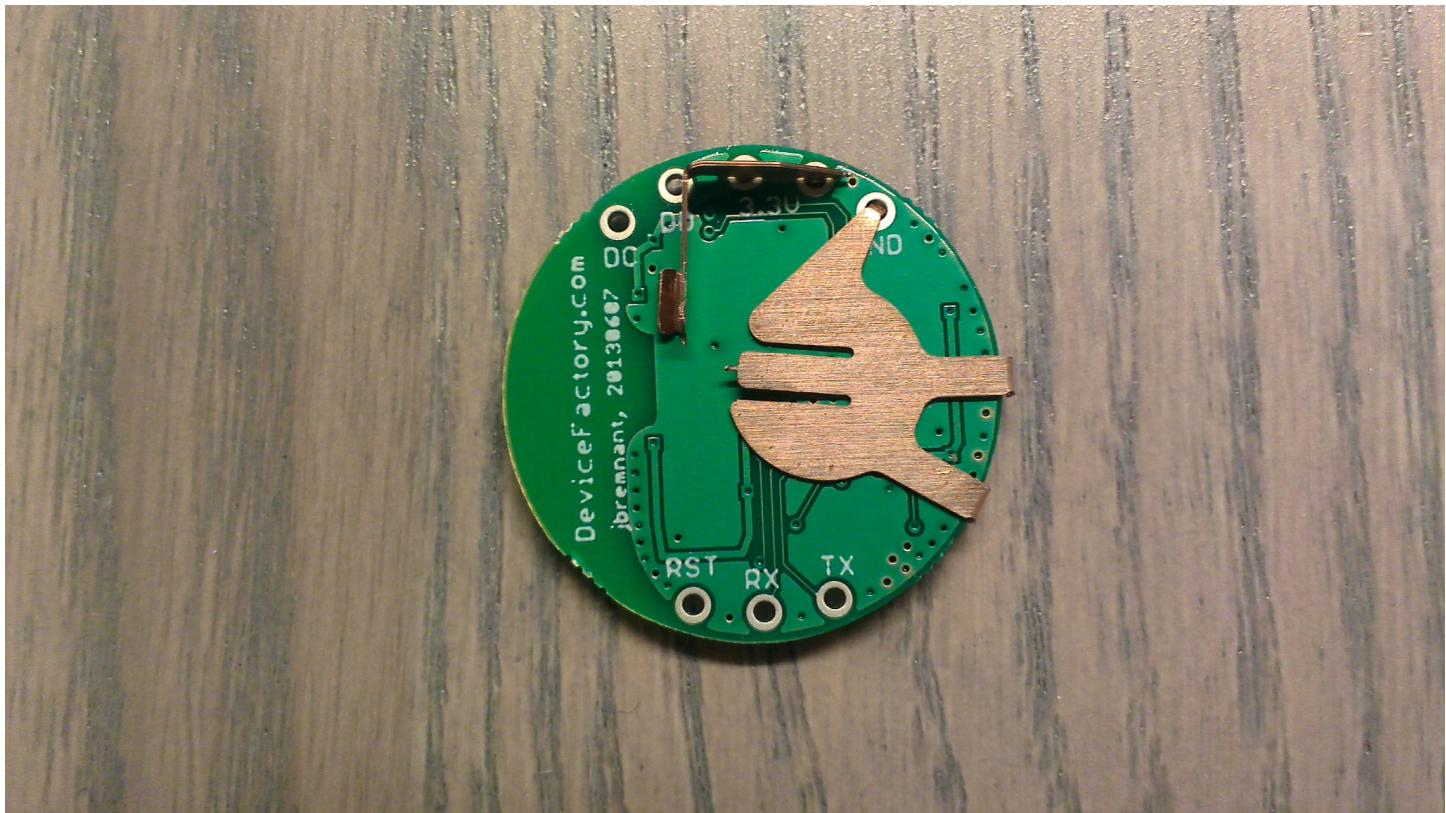
The Kapton tape needs to be place on the bottom-side of the PCB. Pictures illustrate where the tape should be placed. An entire roll containing 500 of these kapton dots is supplied.

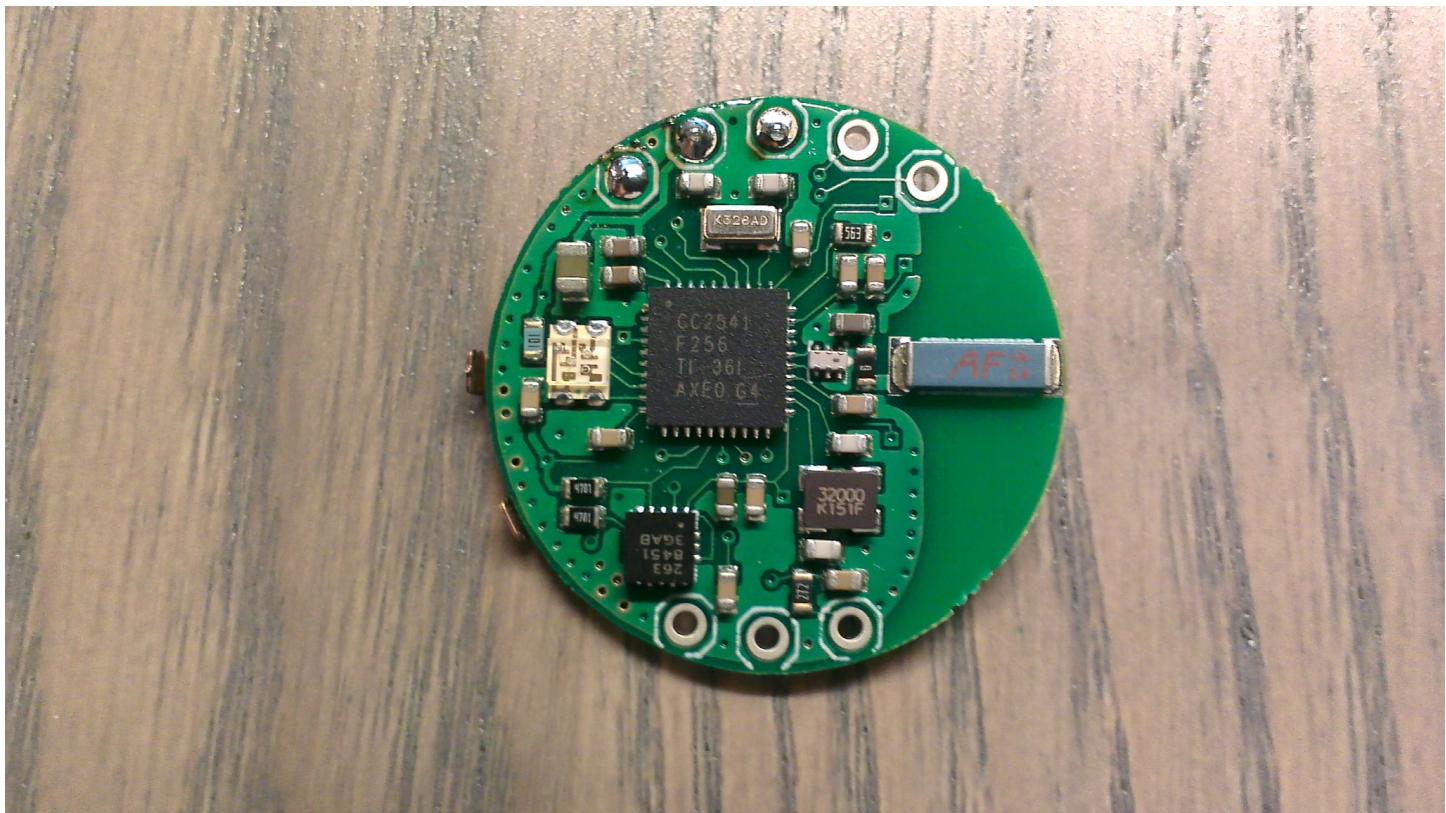




## Step 6 : Solder the Battery Clips

Solder both the positive and negative terminals. Refer to the picture for orientation of these battery clips.





## And That's It!

The assembled boards will be placed within plastic enclosure as shown in the picture below.

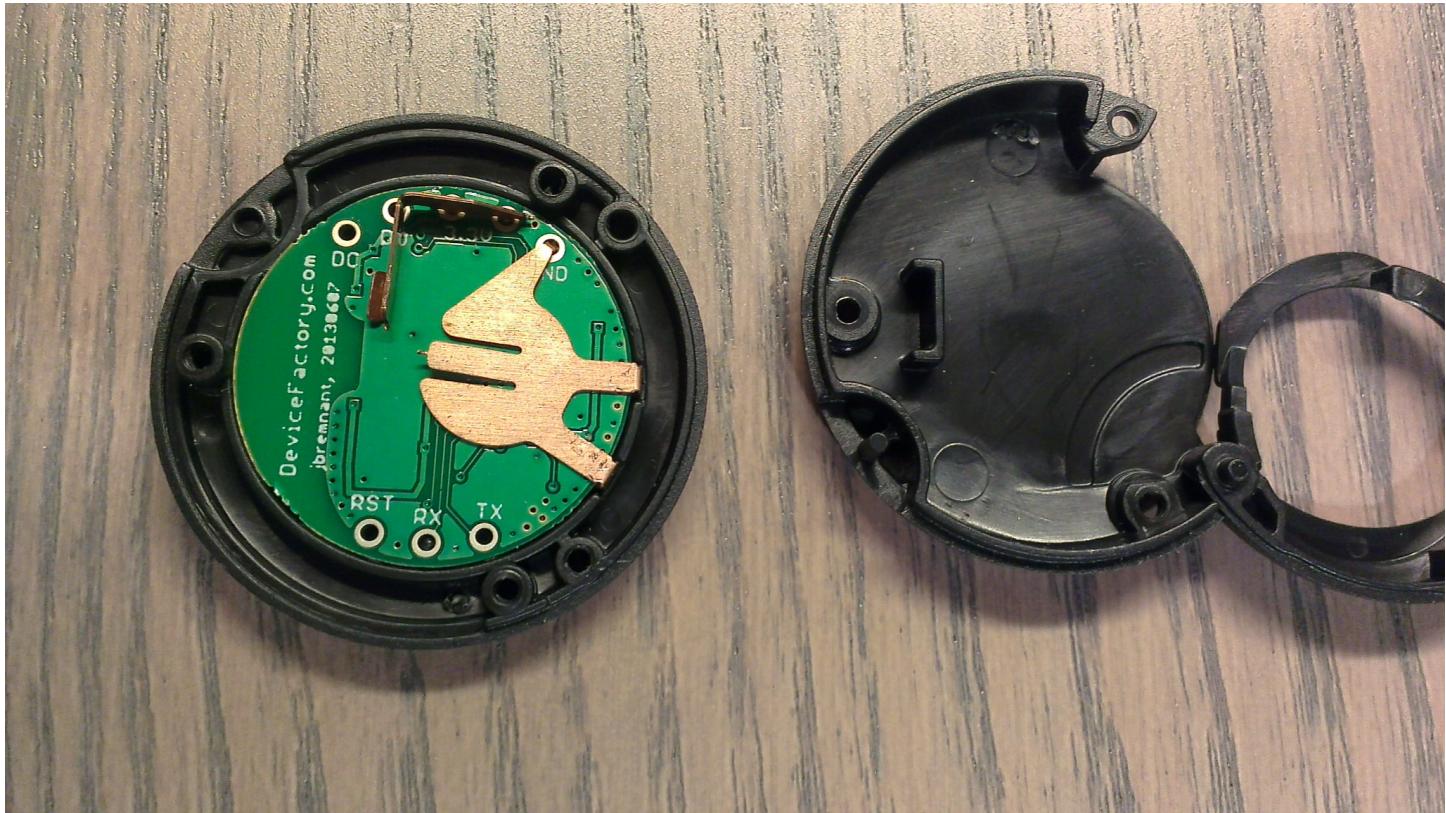
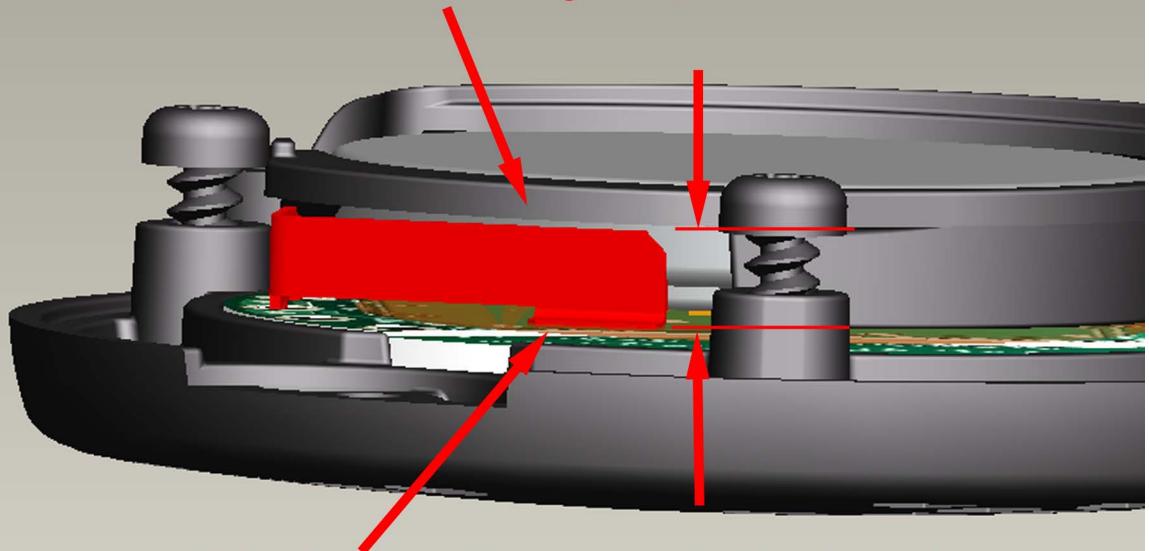


Figure 3: final2

The correctness of the battery clip assembly is paramount. This is how the clips will come in contact with the battery.

*contact needs to fit under flange*



*if the foot is not bent properly this dimension may  
be too much which will cause interference and  
overbending of the contact*

